

ABSTRACT

A system and method of converting waste plastics into hydrocarbon oil comprises
5 a thermal cracking reactor, into which the waste plastics are cracked at a
temperature in the range of 270-800°C to obtain partly gaseous hydrocarbons,
partly liquid hydrocarbons, and remaining residues. A continuous thermal cracking
and residual discharging portion is connected to have the liquid hydrocarbons
gradually and fully cracked into gaseous hydrocarbons, while the residues are
10 discharged at a residual discharge outlet. A chlorine removal portion is connected
to receive the gaseous hydrocarbons to remove chlorine from it. A catalytic
cracking reactor is connected to the chlorine removal portion to have the gaseous
hydrocarbons catalytic cracking with an acid catalyst. A three-stage cooling portion
is adopted to have the catalytically cracked gaseous hydrocarbons fully converted
15 into liquid hydrocarbons, i.e., hydrocarbon oil. A pressurized activation reaction
portion is provided to remove few amount of S. N. P. from the liquid hydrocarbons
to obtain purified hydrocarbon oils.